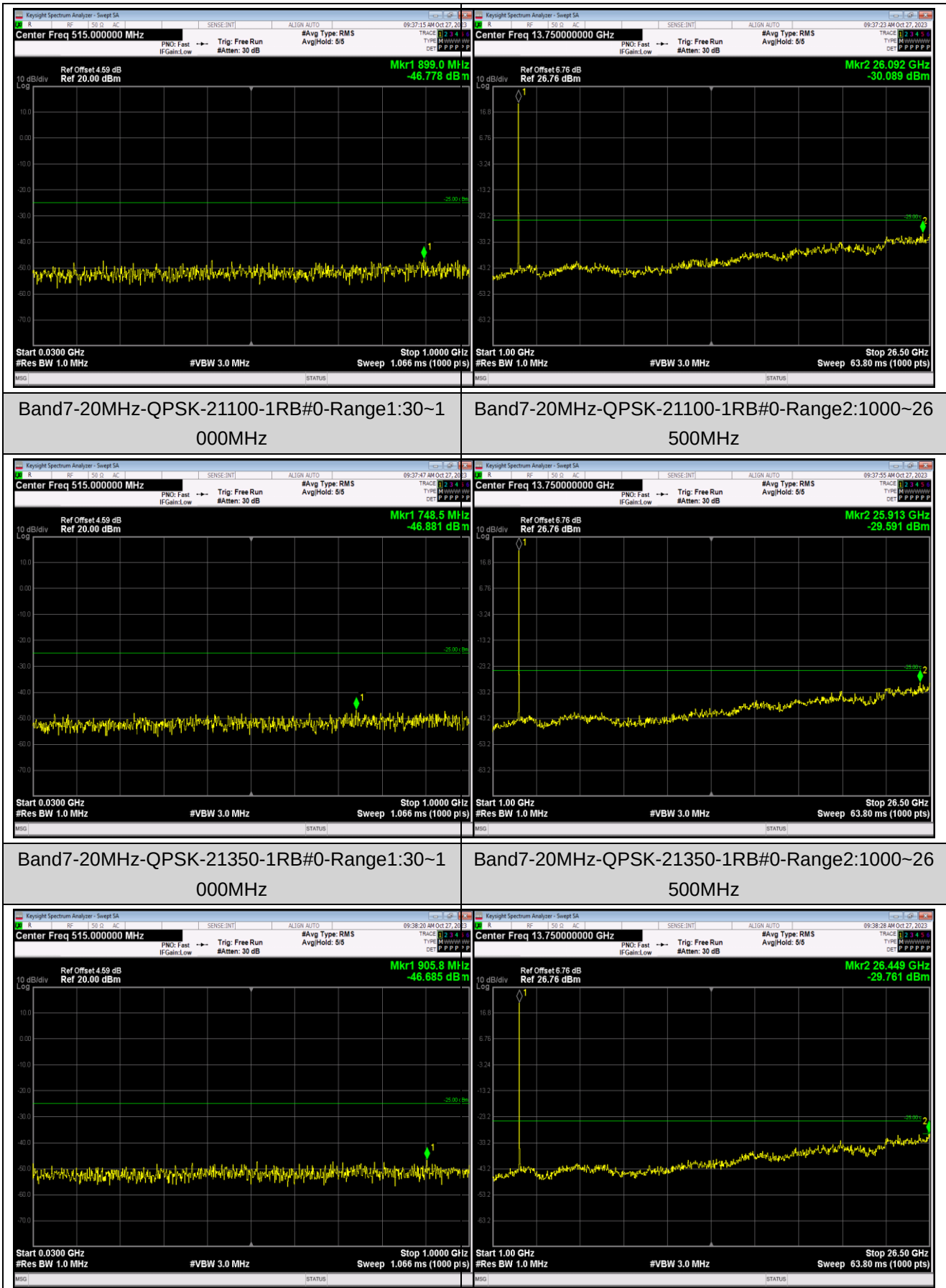
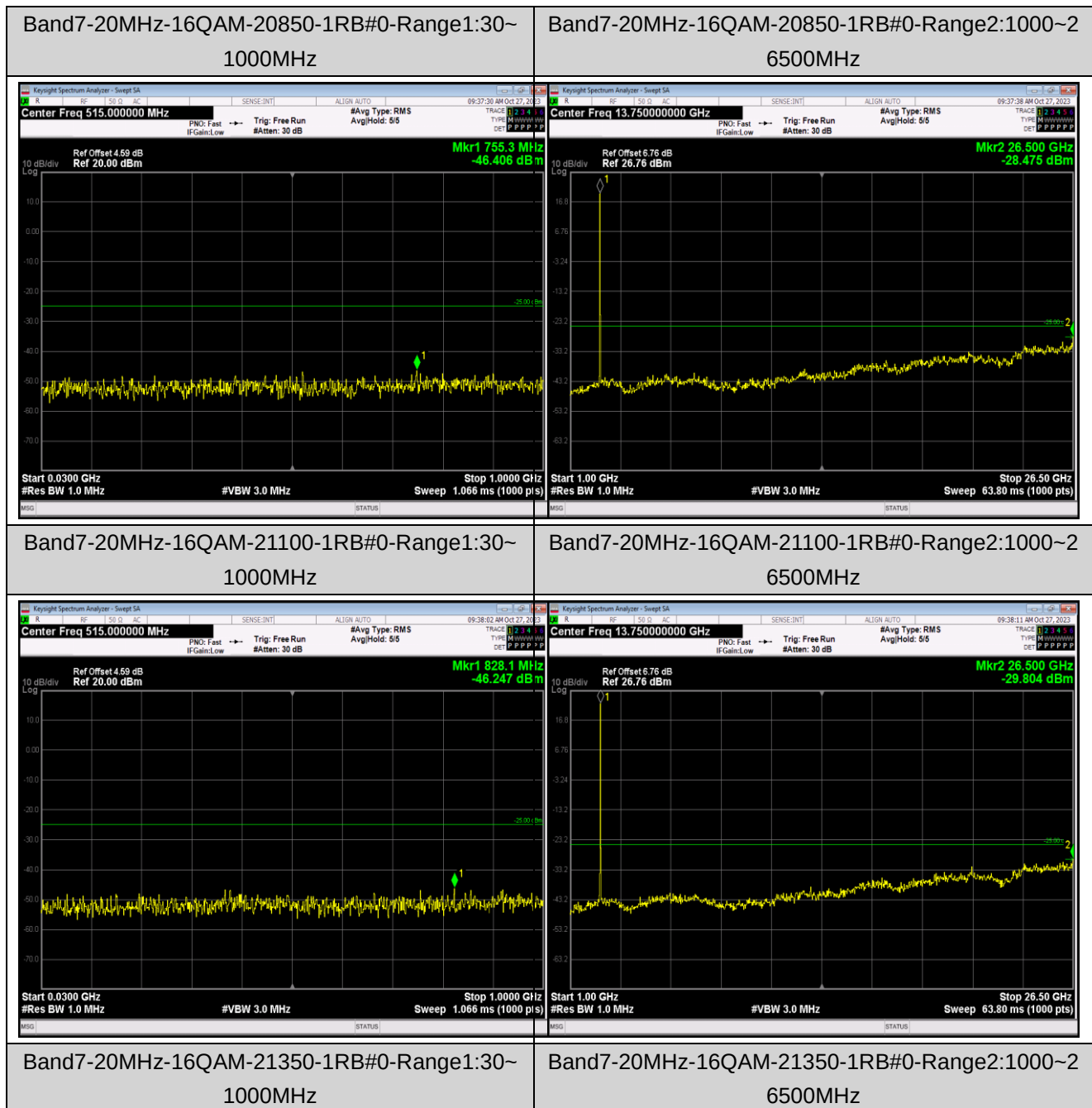
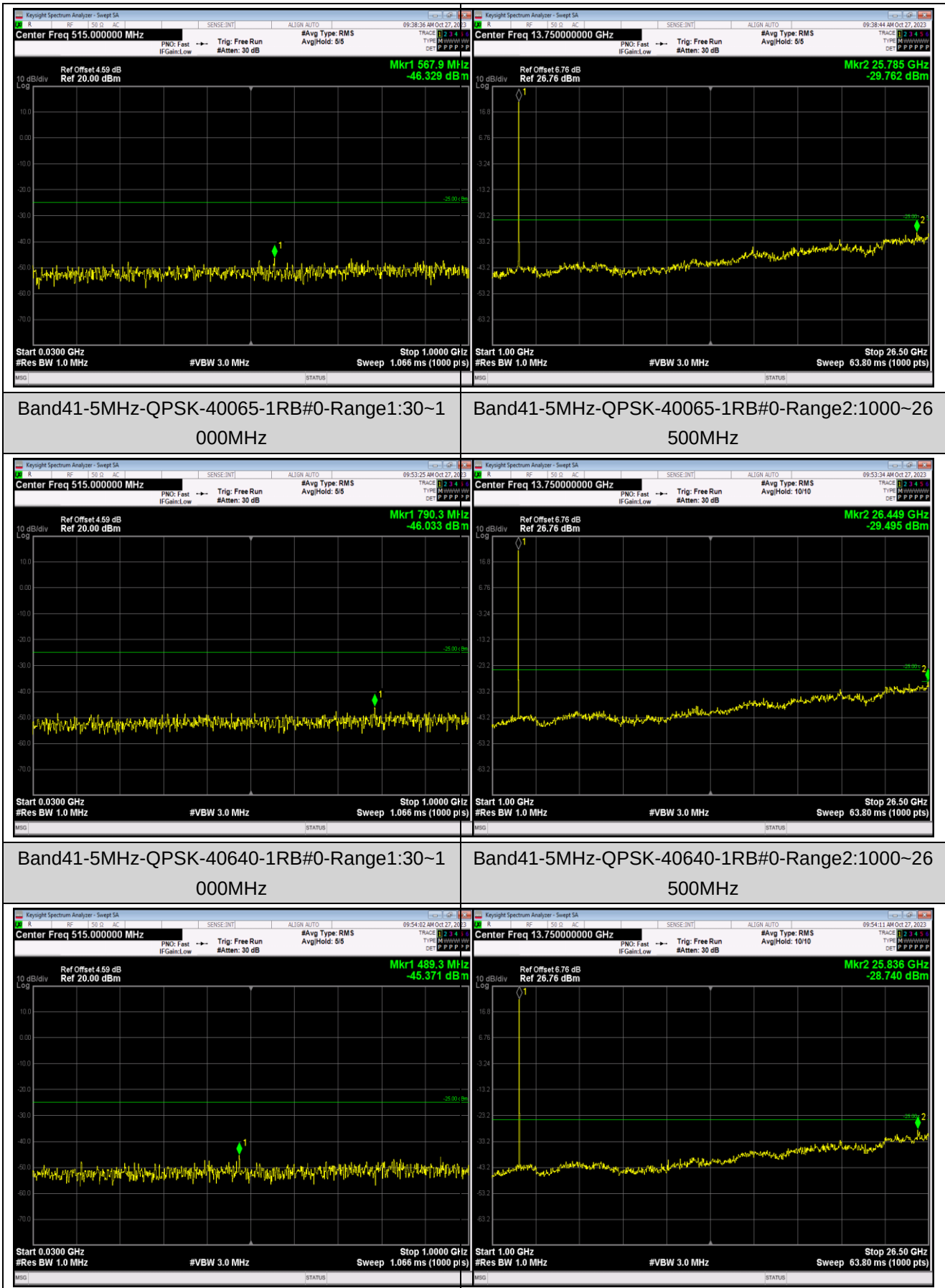
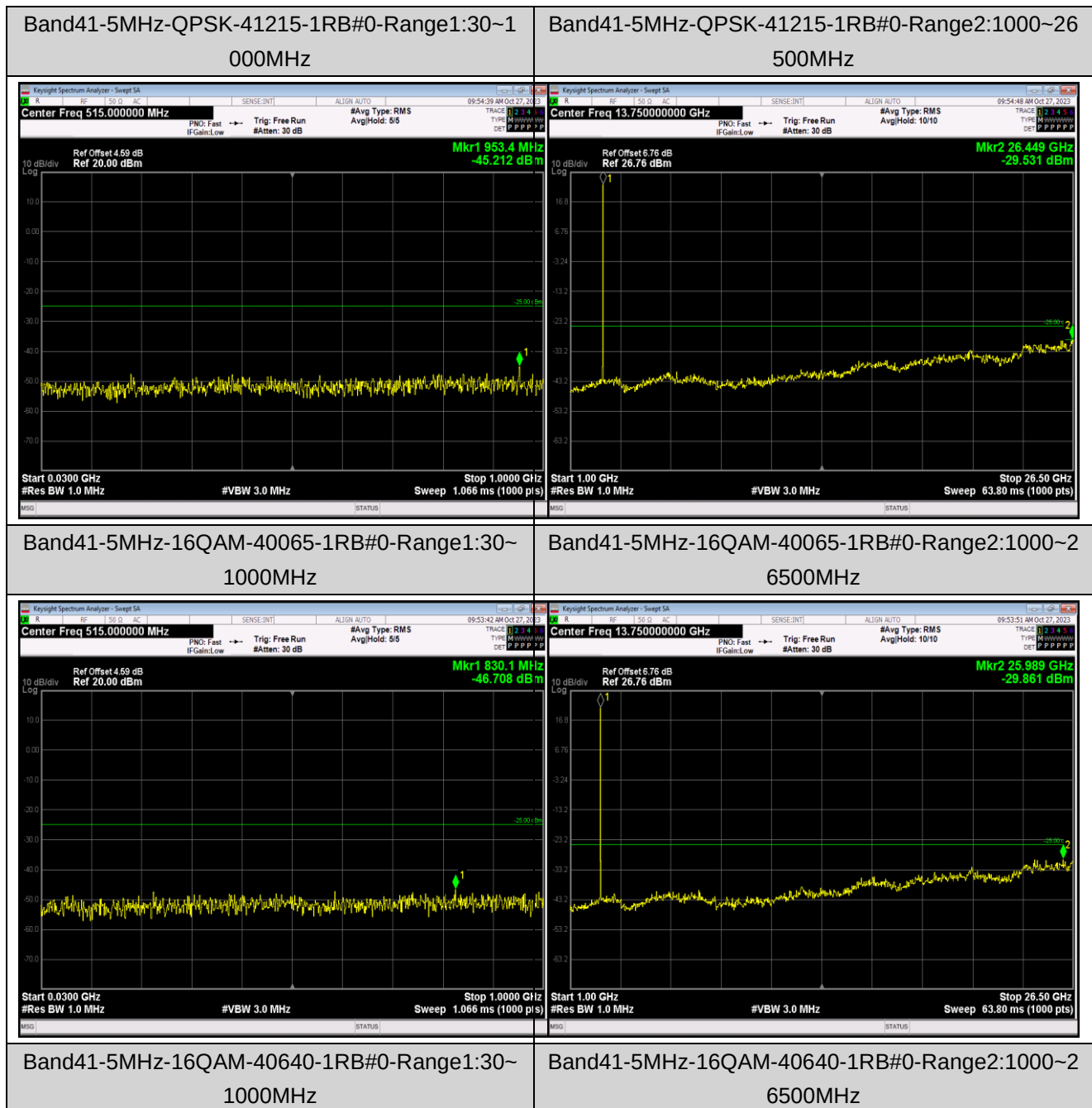
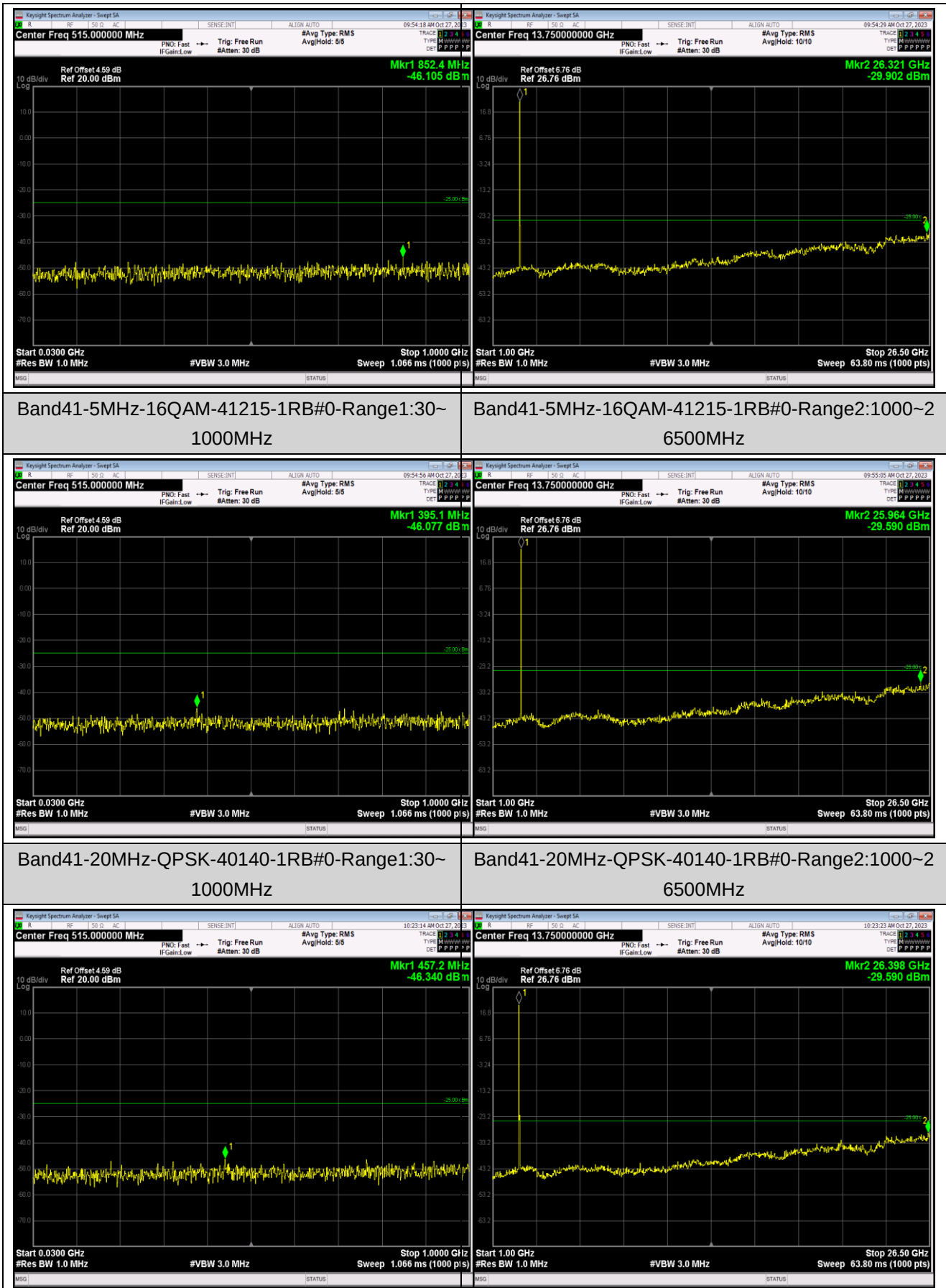


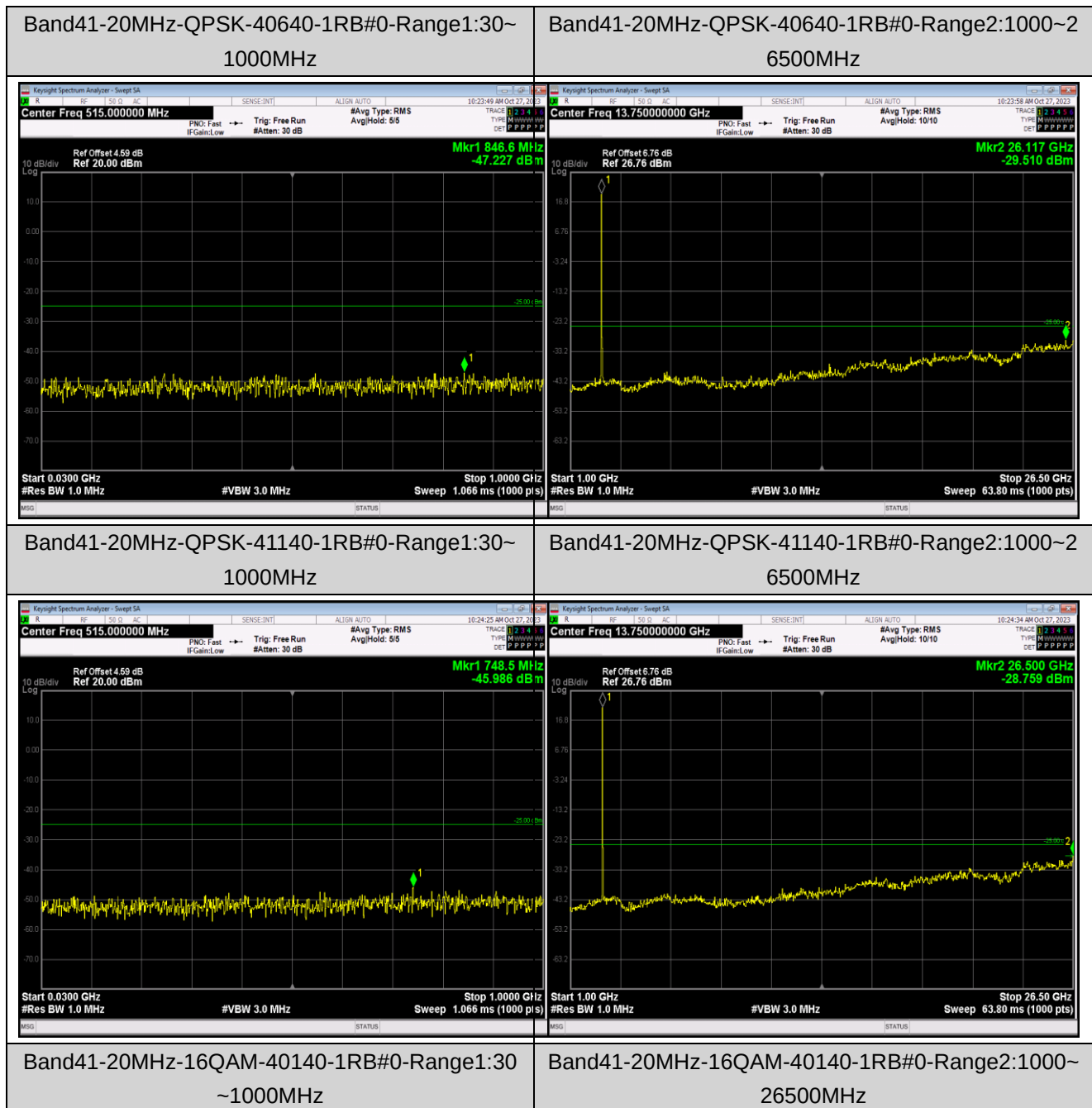


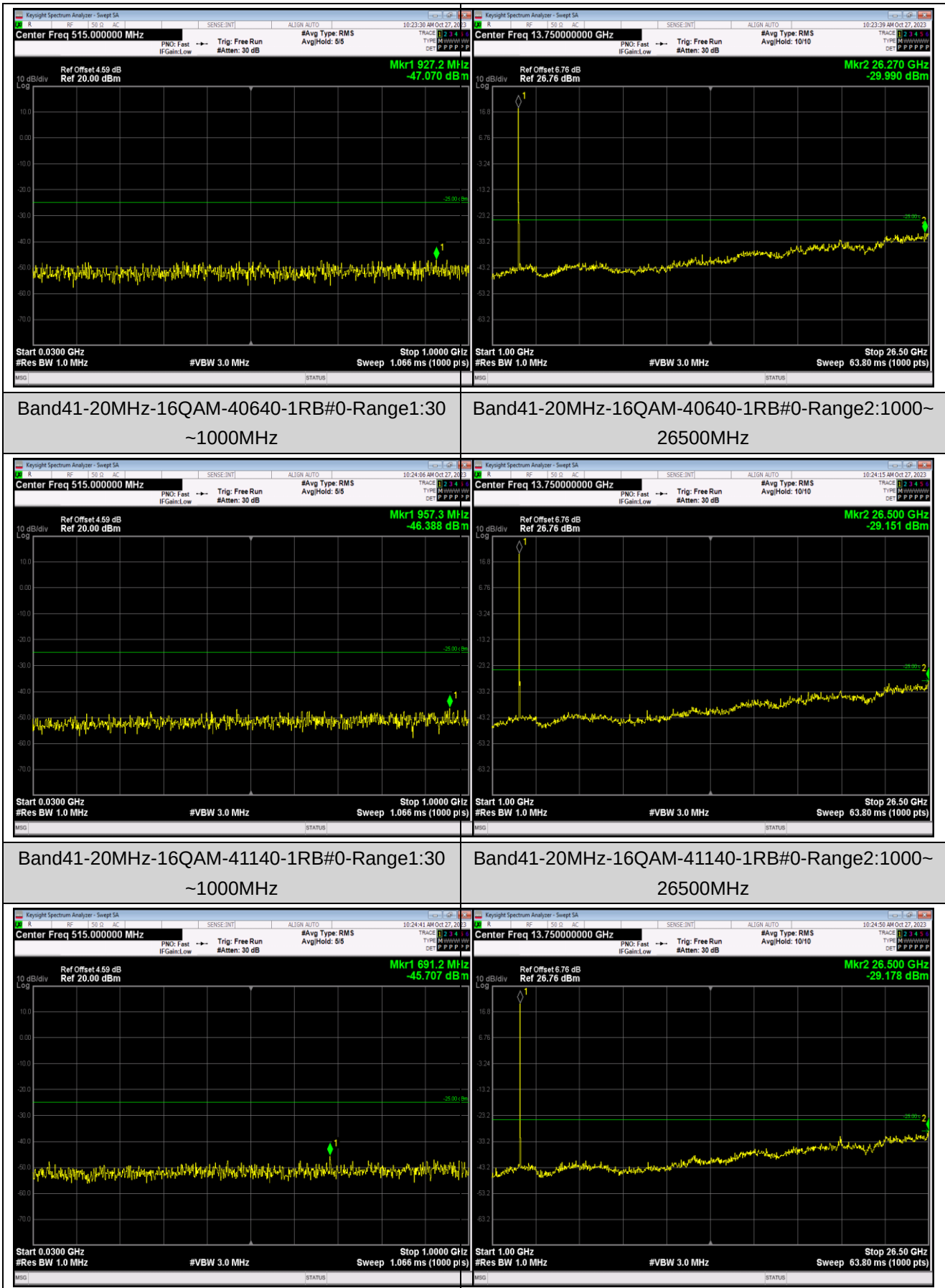












Appendix F: Frequency Stability

Test Result

LTE Band 2 part:

Reference Frequency: LTE Band 2 (10MHz) Middle channel=18900 Frequency=1880.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-23.33	-0.012410	Within authorized band for Band 2	Pass
	-20	-24.88	-0.013234		
	-10	-10.16	-0.005404		
	0	-28.35	-0.015080		
	10	-21.37	-0.011367		
	20	-9.83	-0.005229		
	30	5.65	0.003005		
	40	-19.07	-0.010144		
	50	-17.29	-0.009197		
16QAM					
3.85	-30	-18.01	-0.009580	Within authorized band for Band 2	Pass
	-20	-22.80	-0.012128		
	-10	-2.88	-0.001532		
	0	-8.27	-0.004399		
	10	-26.58	-0.014138		
	20	-26.21	-0.013941		
	30	-16.88	-0.008979		
	40	-21.09	-0.011218		
	50	-12.92	-0.006872		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-26.75	-0.014229	Within authorized band for Band 2	Pass
	3.85	-29.17	-0.015516		
	4.40	-28.88	-0.015362		
16QAM					
25	3.50	-17.37	-0.009239	Within authorized band for Band 2	Pass
	3.85	-3.71	-0.001973		
	4.40	-22.36	-0.011894		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 4 part:

Reference Frequency: LTE Band 4(10MHz) Middle channel=20175 Frequency=1732.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-16.39	-0.009460	Within authorized band for Band 4	Pass
	-20	-11.89	-0.006863		
	-10	-18.24	-0.010528		
	0	-18.31	-0.010569		
	10	-23.26	-0.013426		
	20	-5.66	-0.003267		
	30	-21.73	-0.012543		
	40	-22.16	-0.012791		
	50	-20.89	-0.012058		
16QAM					
3.85	-30	-14.81	-0.008548	Within authorized band for Band 4	Pass
	-20	3.91	0.002257		
	-10	-10.81	-0.006240		
	0	-25.12	-0.014499		
	10	-14.20	-0.008196		
	20	-7.08	-0.004087		
	30	-12.12	-0.006996		
	40	17.21	0.009934		
	50	14.10	0.008139		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-14.00	-0.008081	Within authorized band for Band 4	Pass
	3.85	-19.80	-0.011429		
	4.40	-25.65	-0.014805		
16QAM					
25	3.50	17.97	0.010372	Within authorized band for Band 4	Pass
	3.85	-21.76	-0.012560		
	4.40	-15.56	-0.008981		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 5 part:

Reference Frequency: LTE Band 5(10MHz) Middle channel=20525 Frequency=836.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-4.08	-0.004877	±2.5	Pass
	-20	-11.22	-0.013413		
	-10	-9.81	-0.011727		
	0	-11.06	-0.013222		
	10	-11.36	-0.013580		
	20	-9.11	-0.010891		
	30	-8.34	-0.009970		
	40	-5.45	-0.006515		
	50	-10.71	-0.012803		
16QAM					
3.85	-30	-9.34	-0.011166	±2.5	Pass
	-20	-8.94	-0.010687		
	-10	4.42	0.005284		
	0	-7.61	-0.009097		
	10	-2.99	-0.003574		
	20	-12.43	-0.014860		
	30	-10.33	-0.012349		
	40	-9.97	-0.011919		
	50	-7.62	-0.009109		
Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-12.52	-0.014967	±2.5	Pass
	3.85	-10.89	-0.013019		
	4.40	-13.49	-0.016127		
16QAM					
25	3.50	-12.62	-0.015087	±2.5	Pass
	3.85	-12.50	-0.014943		
	4.40	4.86	0.005810		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 7 part:

Reference Frequency: LTE Band 7(10MHz) Middle channel=21100 Frequency=2535.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	20.51	0.008091	Within authorized band for Band 7	Pass
	-20	-11.23	-0.004430		
	-10	-24.68	-0.009736		
	0	-22.39	-0.008832		
	10	-22.19	-0.008753		
	20	-23.45	-0.009250		
	30	-22.36	-0.008821		
	40	-28.61	-0.011286		
	50	-17.31	-0.006828		
16QAM					
3.85	-30	-22.57	-0.008903	Within authorized band for Band 7	Pass
	-20	-29.75	-0.011736		
	-10	15.16	0.005980		
	0	12.97	0.005116		
	10	-26.38	-0.010406		
	20	-31.90	-0.012584		
	30	18.44	0.007274		
	40	-23.85	-0.009408		
	50	-7.30	-0.002880		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-30.17	-0.011901	Within authorized band for Band 7	Pass
	3.85	-16.09	-0.006347		
	4.40	-20.90	-0.008245		
16QAM					
25	3.50	-22.03	-0.008690	Within authorized band for Band 7	Pass
	3.85	-26.26	-0.010359		
	4.40	-22.44	-0.008852		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 41 part:

Reference Frequency: LTE Band 41 (10MHz) Middle channel=40640 Frequency=2595.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	13.45	0.005183	Within authorized band for Band 41	Pass
	-20	-22.83	-0.008798		
	-10	5.09	0.001961		
	0	-21.60	-0.008324		
	10	-24.36	-0.009387		
	20	-36.62	-0.014112		
	30	-31.81	-0.012258		
	40	-32.19	-0.012405		
	50	-21.87	-0.008428		
16QAM					
3.85	-30	9.88	0.003807	Within authorized band for Band 41	Pass
	-20	10.79	0.004158		
	-10	-25.59	-0.009861		
	0	-25.23	-0.009723		
	10	-23.98	-0.009241		
	20	-30.50	-0.011753		
	30	-22.40	-0.008632		
	40	-30.17	-0.011626		
	50	-26.22	-0.010104		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-21.23	-0.008181	Within authorized band for Band 41	Pass
	3.85	-30.46	-0.011738		
	4.40	-26.22	-0.010104		
16QAM					
25	3.50	-19.45	-0.007495	Within authorized band for Band41	Pass
	3.85	-27.77	-0.010701		
	4.40	-30.58	-0.011784		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

Appendix G: Modulation Characteristics

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result	Verdict
Band2	20MHz	QPSK	18900	100RB#0	PASS	PASS
Band2	20MHz	16QAM	18900	100RB#0	PASS	PASS
Band4	20MHz	QPSK	20175	100RB#0	PASS	PASS
Band4	20MHz	16QAM	20175	100RB#0	PASS	PASS
Band5	10MHz	QPSK	20525	50RB#0	PASS	PASS
Band5	10MHz	16QAM	20525	50RB#0	PASS	PASS
Band7	20MHz	QPSK	21100	100RB#0	PASS	PASS
Band7	20MHz	16QAM	21100	100RB#0	PASS	PASS
Band41	20MHz	QPSK	40640	100RB#0	PASS	PASS
Band41	20MHz	16QAM	40640	100RB#0	PASS	PASS

Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.

Test Graphs

